



Answers to M Natal Contractor RFI #003

1. The Walgreens plans show that the cabinets are to be plastic laminate. The Cardio/Rehab plans do show cabinets, but do not specify the material they are to be made from. Please provide the material that the cabinets are to be made from.

Answer: See attached.

2. Please provide the height that the new walls shown on Sheet A1 are to be framed to? Also, is note 2 on Sheet A1 correct?

Answer 2a: All new interior walls shall be framed and sheet rocked to 6" above the ceiling height.

Answer 2b: A1 NOTE #2. "ALL NEW WALLS IN CORRIDOR SHALL BE TIGHT TO BOTTOM OF 2ND FLOOR AND ALL SEAMS SHALL BE FIRE CAULKED." This note applies to new construction in the corridor where the doors are being recessed into the existing corridor walls.

3. Sheet R-003, Section 01011, Part 1.02 references a card access system. Is this required?

Answer: To be answered by Walgreens

4. Sheet R-003, Section 07200, Part 2.01.B references Extruded Polystyrene Board Insulation. Is it required and if so, where?

Answer: To be answered by Walgreens

5. Sheet R-004, Section 08300 references Motorized Rolling Grille? Is this required?

Answer: To be answered by Walgreens

6. Sheet R-005, Section 09985, Part 2.01 and 2.02 references Column Covers and Corner Guards. Are they required and if so, where?

Answer: To be answered by Walgreens

15. Are there material selections for the carpet / sheet vinyl / nora / cove base in the Cardio / Rehab plan A1? Please see attached finish floor plan for reference.

Answer: Contractor shall supply samples. Walgreen's project manager to approve.

16. For the Walgreens scope of work, on sheet A-111, note 2 under the floor plan keyed notes calls for new carpeting & vinyl base. On the print, it shows note 2 in the office area, however on the room finish schedule on sheet A-221 the office area is called out as rubber tile. Please confirm which one is correct. If it is the carpet, please confirm a material selection.

Answer: To be answered by Walgreens

17. Will there be any work needed in the main corridor 128 outside Walgreens?

Answer: The existing wall will be demolished to allow the installation of the window system and door system. The ceiling, walls and floors in this area will need to be patched to match existing.

18. Are the storage racks in the middle of the pharmacy permanent? Will they need cove base at the bottom of them?

Answer: To be answered by Walgreens

19. Will the scope of work for any of these areas need vapor emission control?

Answer: Yes. It is required when/where moisture is found during removal of existing flooring for new flooring.

ADDITIONAL INFORMATION

1. Air ducts to be Metalaire Series 5000. See attached.
2. See attached Day-Brite Lighting Specification for light fixtures in Cardio Rehab Renovation.

Pre-Bid RFI #003

1. The Walgreens plans show that the cabinets are to be plastic laminate. The Cardio/Rehab plans do show cabinets, but do not specify the material they are to be made from. Please provide the material that the cabinets are to be made from.
2. Please provide the height that the new walls shown on Sheet A1 are to be framed to? Also, is note 2 on Sheet A1 correct?
3. Sheet R-003, Section 01011, Part 1.02 references a card access system. Is this required?
4. Sheet R-003, Section 07200, Part 2.01.B references Extruded Polystyrene Board Insulation. Is it required and if so, where?
5. Sheet R-004, Section 08300 references Motorized Rolling Grille? Is this required?
6. Sheet R-005, Section 09985, Part 2.01 and 2.02 references Column Covers and Corner Guards. Are they required and if so, where?
7. Sheet R-005 Section 10522, Section 2.01 references Fire Extinguishers. How many Fire Extinguishers are required and where are they to be located. We do not see any Fire Extinguishers on the plans.
8. What is the ceiling height for each phased area? We see some areas marked as 8'6", but most areas aren't specified at all. What is the height from slab to 2nd floor deck for each phased area?
9. What type of wall insulation is required and where is it required?
10. Is ceiling insulation required?
11. Are the two separate sets of plans to be priced together as one bid, or is pricing to be separated?
12. Is night and/or weekend work required due to phasing?
13. For the areas marked "after hours work" in the Cardio / Rehab Area (under the phasing legend on A3), is this part of Phase I or Phase II?
14. In the Main Corridor 128 on sheet A1 for the Cardio / Rehab Area, there are 2 doorways that lead out into it. The first one calls for carpet, the second one calls for Sheet Vinyl. Are these just patches where they added the doors? *YES*
15. Are there material selections for the carpet / sheet vinyl / nora / cove base in the Cardio / Rehab plan A1? Please see attached finish floor plan for reference.
16. For the Walgreens scope of work, on sheet A-111, note 2 under the floor plan keyed notes calls for new carpeting & vinyl base. On the print, it shows note 2 in the office area, however on the room finish schedule on sheet A-221 the office area is called out as rubber tile. Please confirm which one is correct. If it is the carpet, please confirm a material selection.
17. Will there be any work needed in the main corridor 128 outside Walgreens?
18. Are the storage racks in the middle of the pharmacy permanent? Will they need cove base at the bottom of them?
19. Will the scope of work for any of these areas need vapor emission control?

Appendix C: Email Form for Questions

EMAIL FORM
FOR REQUEST FOR INFORMATION

General Contracting Services for Walgreens Store #15988

To: Doug Heinen
Architectural Coordinator
Walgreens Co.
106 Wilmot Road, MS 1620
Deerfield IL 60015
Doug.heinen@walgreens.com
Office: 847.315.4449

CC: Lennox.jackson@walgreens.com

From: Contact Name Patricia Shurden
Company Name M Natal Contractor, Inc.
Company Address P.O. Box 518, Slidell, LA 70459
Phone 985-649-2713
Fax 985-847-1250
Email patricia@mnatal.com

Date: 1/23/2014

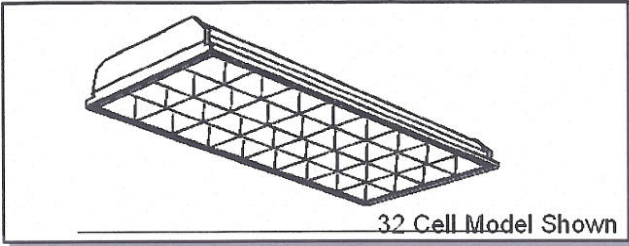
Time: 1:00 pm

Total Number of Pages (including cover page): 1

Reference to

Section(s) _____ Subsection(s) _____ Paragraph(s) _____

Question: The Electrical Plans in the Cardio Rehab Renovation set of plans does not contain any specifications for the light fixtures. Please provide model numbers for the required light fixtures.



4 Lamp T8
24 or 32 Cell

APPLICATION

- Low-brightness troffer for most ceilings:
 - Grid inverted T (NEMA "G")
 - Flange-type for concealed mechanical suspension (NEMA "F")
 - Modular and "Z" spline (NEMA "M/Z")
- Designed for air supply/return through side slots and/or heat transfer. Select the appropriate catalog no. for air function desired. Air pattern control blades in side slots must be ordered as an option. Air boots by others.
- Excellent visual comfort and inconspicuous appearance.

CONSTRUCTION/FINISH

- Housing is multi-stage phosphate treated for maximum corrosion resistance and finish coat is high reflectance baked white enamel.
- Flat black finish inside perimeter reveal for "floating door" appearance.
- Built in (UL listed, patented) grid clips designed for use with standard 1-1/2" high grid ceiling members.
- Standard wireway cover is designed to accommodate small can ballasts. Use of emergency ballasts or specification of ballasts other than generic ballasts may require the use of a larger wireway cover.
- "Deep" wireway cover may be specified when ordering.

ELECTRICAL

- Class P, HPF ballasts comply with Federal Ballast Law (Public Law 100-357, 1988).
- UL listed for damp locations. Canadian certified optional.
- Self-contained fluorescent emergency power packs can be incorporated, UL listed for dry locations. Bodine LP series emergency ballasts are recommended for use with the standard wireway cover. DEB series emergency ballasts may be used with the larger wireway cover.

ENCLOSURES

- Parabolic-shaped louvers closely controlled for uniform low-brightness appearance, and interlocked to avoid vibration.
- Choice of semi-specular (AL) or specular (FL) low iridescence anodized aluminum, or white (W) louver finishes.
- 24 Cell: Lengthwise shielding is 19°. Crosswise shielding is 45°.
- 32 Cell: Lengthwise shielding is 25°. Crosswise shielding is 45°.
- Bottom aluminum flange has mitered corners and fits flush with ceiling.
- Can be hinged and latched from either side.
- Shipped with plastic film to keep out construction dirt.
- Guide-post spring loaded latches standard.

CATALOG NUMBER

2	LP3	G	S	4	32	46	AL	UNV	ASC
WIDTH 2 - 2'	CEILING TYPE F - Flange G - Grid Z - Z Spline Modular	AIR FUNCTION A - Air Supply C - Combination (Air & Heat Transfer) H - Heat Transfer S - Static (no air function)	NO. OF LAMPS (not included) 4	LAMP TYPE/WATTAGE 32 - 32wT8 (48')	LOUVER CONFIGURATION (cells wide x cells long) 46 - 4 x 6 48 - 4 x 8	LOUVER FINISH AL - Semi-Specular Low Iridescence Anodized Aluminum FL - Full Specular Low Iridescence W - Painted White	VOLTAGE 120 277 347 UNV - Universal voltage, 120-277 volt	OPTIONS APC - Adjustable Air Pattern Control Blades ASC - Air Slot Covers DWC - Deep Wireway Cover	

*32w
x 4 lamps
128 watts*

NOTES:

- With generic Electronic Ballasts (Brand selected by Day-Brite)
Suffix Catalog # with - **Ballast Quantity** - / - **EB** **Lamps Per Ballast**.
- Example: -1/4-EB** = One 4 Lamp Electronic Ballast.
- Example: -2/2-EB** = Two 2 Lamp Electronic Ballasts.

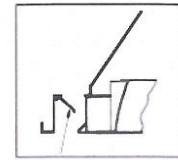
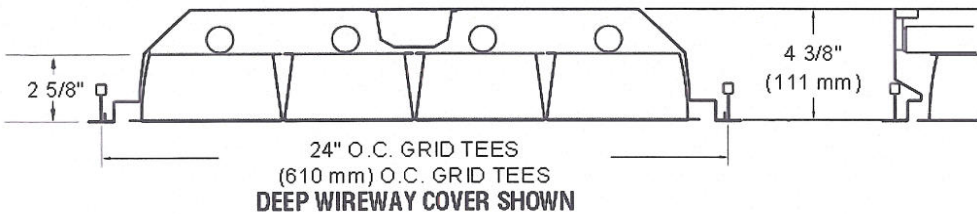
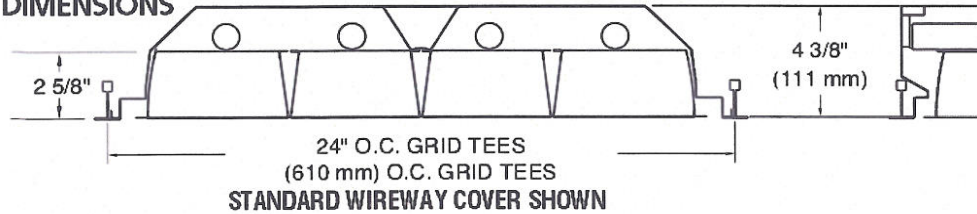
See Section 1600-OA for Option Info.

JOB INFORMATION

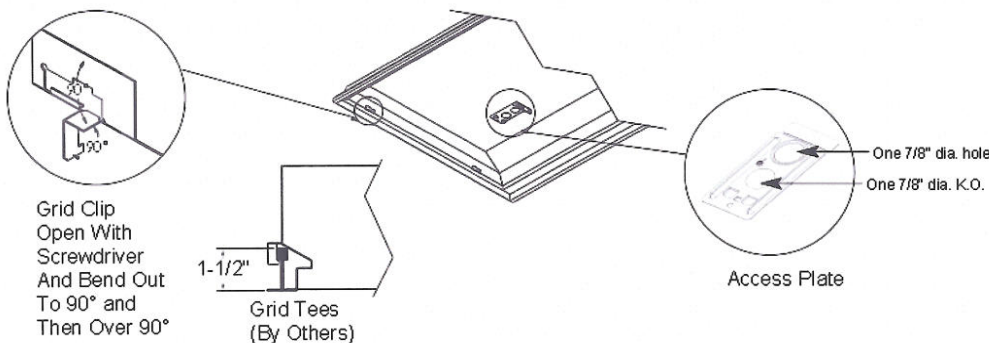
254.2-PLV

2' x 4' 4 LAMP LP3 PARALOUVER

DIMENSIONS

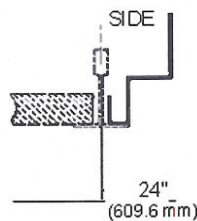


- Optional Air Pattern Control
(on Air and Combination Units)
- Fully adjustable
 - Closed= Static
 - 45°= Horizontal Air Supply
 - 90°= (fully open) - Vertical Air Supply
 - Side Slots may also be used for Return Air to Plenum
 - Snap-in Air Slot Covers (ASC) also available



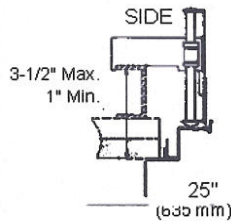
2 **LP3** **G** **S** **4** **32**
CEILING TYPE

G = GRID (NEMA G)



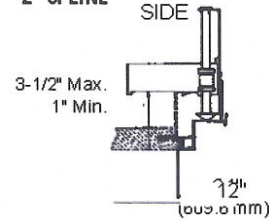
(NEMA Type G)
Lay-in acoustical ceilings
using exposed grid
suspension, with tees for
fixtures on 24" x 48" spacing.

F = FLANGE (NEMA F)



(NEMA Type F)
Flange for acoustical ceilings
using concealed mechanical
suspension. Swing-jack
mounting brackets: adjustment
3-1/2" max. and 1" min. Refer
to sheet 801-CL for cut-out
information.

**Z = (NEMA M/Z) MODULAR AND
"Z" SPLINE**



(NEMA M/Z)
Modular and "Z" Spline using
concealed mechanical
suspension. Swing-jack
mounting brackets: adjustment
3-1/2" max. and 1" min.

FOR PHOTOMETRIC TESTS ON WHITE LOUVERS ASK FOR TEST #'S:

24 CELL - 20859
32 CELL - 20853



The photometric results were obtained in the Day-Brite Lighting Laboratory which is NVLAP accredited by the National Institute of Standards and Technology.

254.2-PLV

PHOTOMETRIC DATA

CATALOG # 2LP3GS432-46FL-1/4-EB LAMPS = F32 T8
TEST #20856 S/MH= 1.5

INPUT WATTS = 118
BALLAST FACTOR = .88

LER = FP-64

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = \$3.75 BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 75.2%

CANDLEPOWER				
Angle	End	45	Cross	
0	3287	3287	3287	
5	3300	3303	3295	
10	3252	3328	3358	
15	3167	3330	3464	
20	3057	3348	3635	
25	2927	3395	3846	
30	2776	3438	4097	
35	2598	3514	3737	
40	2399	3389	2800	
45	2187	2854	1846	
50	1922	2078	1513	
55	1620	1327	1425	
60	1236	884	786	
65	604	398	30	
70	68	23	12	
75	10	9	6	
80	6	5	3	
85	3	2	1	

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*						
80-50-20 Reflectances (Ceiling-Wall-Floor) LLF = 0.75 2850 Lumens/Lamp very clean Room width divided by room height = 5 or more 2 or 1						
Fixture Size & # of Lamps	Room Width Room Height =	Approx. Area (sq. ft.) per Fixture				
		10 ft-c	30 ft-c	50 ft-c	70 ft-c	100 ft-c
4 Lamp T8	5 2 1	- - -	- - -	139 100 74	99 71 53	70 50 37

* Observe Fixture S/MH Requirements for Specific Applications

AVERAGE LUMINANCE CD/SQ. M WITH 2850 LUMEN LAMPS				
ANGLE	END	45°	CROSS	
45	5045	6584	4258	
55	4607	3774	4052	
65	2331	1536	116	
75	63	57	38	
85	56	37	19	

TYPICAL V.C.P.'s Room Mounting Height				
Room Size	Lengthwise		Crosswise	
	8.5	10	8.5	10
30x30	85	77	91	83
40x40	90	84	94	89
60x30	90	84	94	89
60x60	93	89	96	92
100x100	96	93	98	95

COEFFICIENT OF UTILIZATION										
p/c p/c p/w	20			70			80			p/c p/w
	70	50	30	70	50	30	50	30		
0	90	90	90	86	86	86	83	83	83	83
1	83	81	79	81	79	77	76	73	76	73
2	76	71	68	76	70	67	68	65	68	65
3	71	65	59	69	64	58	61	56	61	56
4	66	57	52	64	56	52	55	51	55	51
5	60	52	46	58	52	46	50	45	50	45
6	56	46	40	55	46	40	45	40	45	40
7	52	42	36	51	41	36	40	35	40	35
8	48	39	33	47	39	33	36	33	36	33
9	46	35	29	45	35	29	34	29	34	29
10	42	33	26	41	33	27	32	27	32	27

LIGHT DISTRIBUTION				
DEGREES	LUMENS	% LAMP	% FIXTURE	
0-30	2832	24.8	33.0	
0-40	4095	42.9	57.1	
0-60	8147	71.5	95.0	
0-90	8578	75.2	100.0	

LLF = .75 LLF = LIGHT LOSS FACTOR LLF = LDD X LLD X BF LDD = VERY CLEAN 0.94 CLEAN 0.90
LLD = 0.91 @ 40% RATED LAMP LIFE BF = .88 ELECTRONIC BALLAST & T-8 LAMP (RELAMP AT 70% LAMP LIFE)

PHOTOMETRIC DATA

CATALOG # 2LP3GS432-46AL-1/4-EB LAMPS = F32 T8
TEST #20858 S/MH= 1.5

INPUT WATTS = 118
BALLAST FACTOR = .88

LER = FP-60

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = \$4.00 BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 70.3%

CANDLEPOWER				
Angle	End	45	Cross	
0	3231	3231	3231	
5	3235	3232	3235	
10	3181	3240	3293	
15	3099	3234	3368	
20	2999	3220	3471	
25	2880	3205	3575	
30	2736	3175	3654	
35	2568	3082	3343	
40	2373	2848	2658	
45	2155	2385	1890	
50	1886	1801	1511	
55	1565	1257	1294	
60	1160	838	785	
65	517	419	189	
70	163	122	78	
75	54	48	35	
80	25	21	16	
85	9	8	5	

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*						
80-50-20 Reflectances (Ceiling-Wall-Floor) LLF = 0.75 2850 Lumens/Lamp very clean Room width divided by room height = 5 or more 2 or 1						
Fixture Size & # of Lamps	Room Width Room Height =	Approx. Area (sq. ft.) per Fixture				
		10 ft-c	30 ft-c	50 ft-c	70 ft-c	100 ft-c
4 Lamp T8	5 2 1	- - -	- - -	130 93 67	93 67 47	65 47 35

* Observe Fixture S/MH Requirements for Specific Applications

AVERAGE LUMINANCE CD/SQ. M WITH 2850 LUMEN LAMPS				
ANGLE	END	45°	CROSS	
45	4971	5502	4360	
55	4451	3575	3680	
65	2381	1617	729	
75	340	303	221	
85	168	150	94	

TYPICAL V.C.P.'s Room Mounting Height				
Room Size	Lengthwise		Crosswise	
	8.5	10	8.5	10
30x30	80	74	84	79
40x40	84	79	88	83
60x30	85	81	89	84
60x60	87	83	90	86
100x100	91	88	94	92

COEFFICIENT OF UTILIZATION										
p/c p/c p/w	20			70			80			p/c p/w
	70	50	30	70	50	30	50	30		
0	83	83	83	81	81	81	78	78	78	78
1	76	76	72	76	73	71	70	68	70	68
2	71	68	64	70	66	63	64	60	64	60
3	67	59	55	65	59	55	55	54	55	54
4	61	54	48	59	53	47	52	46	52	46
5	56	48	42	55	47	42	46	41	46	41
6	53	44	39	52	44	35	41	35	41	35
7	48	40	34	47	40	34	39	34	39	34
8	46	36	30	45	35	30	34	30	34	30
9	42	34	28	41	33	28	33	28	33	28
10	40	30	26	39	30	26	29	26	29	26

LIGHT DISTRIBUTION				
DEGREES	LUMENS	% LAMP	% FIXTURE	
0-30	2712	23.8	33.8	
0-40	4585	40.2	57.2	
0-60	7509	65.9	93.6	
0-90	8018	70.3	100.0	

LLF = .75 LLF = LIGHT LOSS FACTOR LLF = LDD X LLD X BF LDD = VERY CLEAN 0.94 CLEAN 0.90
LLD = 0.91 @ 40% RATED LAMP LIFE BF = .88 ELECTRONIC BALLAST & T-8 LAMP (RELAMP AT 70% LAMP LIFE)

2' x 4' 32 CELL LP3 PARALOUVER



PHOTOMETRIC DATA

CATALOG # 2LP3GS432-48FL-1/4-EB LAMPS = F32 T8
 TEST #20850 S/MH= 1.5 BALLAST = ELECTRONIC

INPUT WATTS = 117
 BALLAST FACTOR = .88

LER = FP-62

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = \$3.87 BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 72.7%

CANDLEPOWER			
Angle	End	45	Cross
0	3322	3322	3322
5	3328	3342	3331
10	3271	3349	3392
15	3179	3354	3406
20	3065	3369	3651
25	2933	3397	3886
30	2785	3460	4143
35	2602	3505	3756
40	2409	3366	2782
45	2169	2757	1793
50	1881	1970	1609
55	1542	1297	1381
60	953	768	863
65	53	180	29
70	11	13	11
75	6	6	5
80	4	4	3
85	3	2	2

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*

80-50-20 Reflectances (Ceiling-Wall-Floor)
 LLF = 0.75 2850 Lumens/Lamp very clean
 Room width divided by room height = 5 or more 2 or 1

Fixture Size & # of Lamps	Room Width Room Height =	Approx. Area (sq. ft.) per Fixture				
		10 ft-c	30 ft-c	50 ft-c	70 ft-c	100 ft-c
4 Lamp T8	5	-	-	135	96	67
	2	-	-	98	70	49
	1	-	121	73	52	36

* Observe Fixture S/MH Requirements for Specific Applications

AVERAGE LUMINANCE CD/SQ.M WITH 2850 LUMEN LAMPS

ANGLE	END	45°	CROSS
45	5003	6360	4136
55	4385	3688	3927
65	205	695	112
75	38	38	32
85	56	37	37

TYPICAL V.C.P.'s

Room Size	Mounting Height	
	Lengthwise	Crosswise
30x30	9.5	10
40x40	9.1	8.5
60x30	9.1	9.1
60x60	9.6	9.3
100x100	9.8	9.6

COEFFICIENT OF UTILIZATION

p/c pcc pw	20			70			80		
	70	50	30	70	50	30	50	30	
0	85	85	85	84	84	84	81	81	
1	81	79	76	79	77	75	73	71	
2	75	70	67	73	68	66	67	64	
3	69	63	57	68	61	57	59	55	
4	64	56	51	63	56	51	54	50	
5	59	51	46	57	51	45	48	44	
6	55	46	40	54	46	40	45	40	
7	51	41	36	50	41	35	40	35	
8	47	39	33	46	38	33	36	32	
9	45	35	29	44	34	29	34	28	
10	41	33	27	40	32	27	32	27	

LIGHT DISTRIBUTION

DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	2848	25.0	34.3
0-40	4913	43.1	59.2
0-60	8060	70.7	97.2
0-90	8293	72.7	100.0

LLF = .75 LLF = LIGHT LOSS FACTOR LLF = LDD X LLD X BF LDD = VERY CLEAN 0.94 CLEAN 0.90
 LLD = .091 @ 40% RATED LAMP LIFE BF = .88 ELECTRONIC BALLAST & T-8 LAMP (RELAMP AT 70% LAMP LIFE)

PHOTOMETRIC DATA

CATALOG # 2LP3GS432-48AL-1/4-EB LAMPS = F32 T8
 TEST #20852 S/MH= 1.5 BALLAST = ELECTRONIC

INPUT WATTS = 119
 BALLAST FACTOR = .88

LER = FP-57

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = \$4.21 BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 67.8%

CANDLEPOWER			
Angle	End	45	Cross
0	3275	3275	3275
5	3283	3276	3268
10	3226	3276	3324
15	3127	3266	3401
20	3019	3248	3509
25	2895	3226	3616
30	2749	3185	3624
35	2575	3064	3230
40	2374	2767	2523
45	2118	2272	1802
50	1815	1675	1545
55	1441	1173	1314
60	875	734	776
65	239	298	214
70	93	89	89
75	43	44	41
80	20	20	18
85	6	6	5

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*

80-50-20 Reflectances (Ceiling-Wall-Floor)
 LLF = 0.75 2850 Lumens/Lamp very clean
 Room width divided by room height = 5 or more 2 or 1

Fixture Size & # of Lamps	Room Width Room Height =	Approx. Area (sq. ft.) per Fixture			
		10 ft-c	30 ft-c	50 ft-c	70 ft-c
4 Lamp T8	5	-	-	126	90
	2	-	-	91	65
	1	-	113	68	48

* Observe Fixture S/MH Requirements for Specific Applications

AVERAGE LUMINANCE CD/SQ.M WITH 2850 LUMEN LAMPS

ANGLE	END	45°	CROSS
45	4886	5241	4157
55	4098	3336	3737
65	922	1150	826
75	271	277	258
85	112	112	94

TYPICAL V.C.P.'s

Room Size	Mounting Height	
	Lengthwise	Crosswise
30x30	8.5	8.0
40x40	8.8	8.4
60x30	8.9	8.5
60x60	9.0	8.7
100x100	9.4	9.2

COEFFICIENT OF UTILIZATION

p/c pcc pw	20			70			80		
	70	50	30	70	50	30	50	30	
0	81	81	81	79	79	79	75	75	
1	76	72	70	73	71	69	66	67	
2	69	65	61	68	64	60	61	58	
3	65	58	54	63	57	54	56	52	
4	59	53	47	57	52	46	50	46	
5	55	47	41	54	46	41	46	40	
6	51	42	38	50	42	38	41	36	
7	47	39	34	46	39	34	38	33	
8	45	35	30	44	35	30	34	29	
9	41	33	28	40	33	28	32	28	
10	39	30	26	38	29	26	29	25	

LIGHT DISTRIBUTION

DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	2733	24.0	35.3
0-40	4578	40.2	59.2
0-60	7357	64.5	95.2
0-90	7732	67.8	100.0

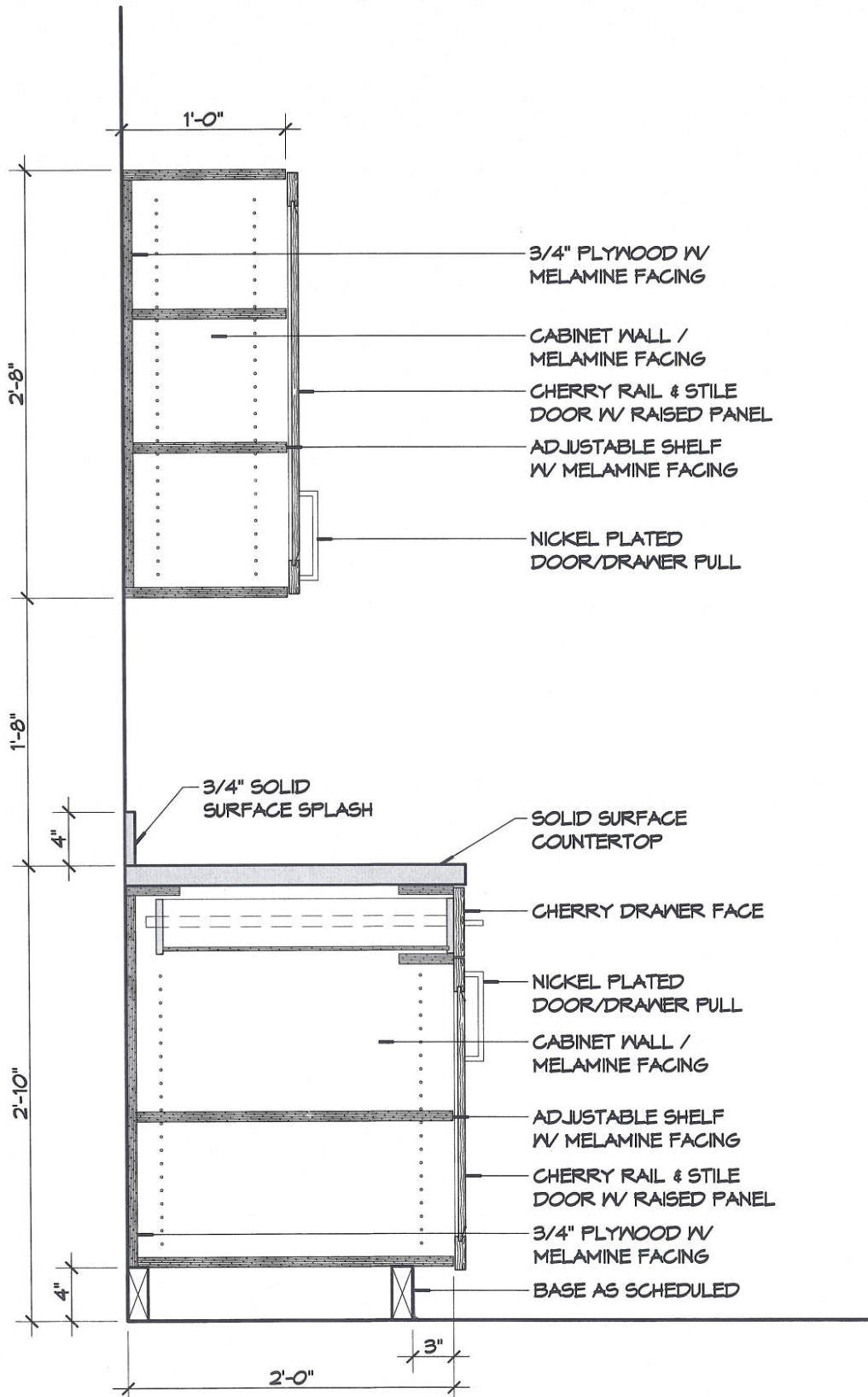
LLF = .75 LLF = LIGHT LOSS FACTOR LLF = LDD X LLD X BF LDD = VERY CLEAN 0.94 CLEAN 0.90
 LLD = .091 @ 40% RATED LAMP LIFE BF = .88 ELECTRONIC BALLAST & T-8 LAMP (RELAMP AT 70% LAMP LIFE)

254.2-PLV

DAY-BRITE LIGHTING • www.daybriteighting.com
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Walgreens
 HSRX
 1001 GAUSE BLVD.
 SLIDELL, LA

JOB No:	2185	DATE:	1-24-2014
ISSUED FOR:	KJK	MODIFIED DRAWING:	KJK

DRAWING NUMBER
SKA01

1 MILLWORK DETAIL
 SCALE: 1" = 1'-0"



Series 5000 – Specifications

5000-1 – Surface Mount

5000-4 – Drop Face

5000-46 – Drop Face – T-Bar Lay-in

5000-6 – T-bar Lay-in

5000-7 – Concealed Spline

5000-8 – Tegular Lay-in

5000-9 – Donn Finline

Air Outlets shall be aluminum model 5000 manufactured by METALAIRE®. Units shall consist of a fixed pattern louvered core fastened into a border with spring loaded latches. Core shall be removable without the use of tools. Outlets shall be engineered for high capacity applications and include straight deflector blades (without a horizontal lip). Units with a horizontal lip at the ends of the deflector blades are not acceptable. The units shall be the size and quantity as outlined in the plans and specifications.

Outlets shall be available in 1, 2 way opposite, 2 way corner, 3, and 4 way directional air patterns.

Units shall be designed to integrate into the specified ceiling system.

Options

Adjustable Pattern (horizontal to vertical)

Outlets shall include adjustable air pattern deflector blades that allows the air pattern to be set from vertical to horizontal (Optional APD Air Pattern Deflectors). Air pattern deflector blades shall be accessible from the face and the diffuser and adjustable without the use of tools.

IV Induction Vanes

Units shall include IV induction vanes factory mounted onto the back side of the deflector vanes. IV vanes shall increase the induction rate of the diffuser.

Accessories

Optional Dampers

Aluminum D5A or Steel D5 opposed blade dampers shall be provided. Damper shall be adjusted using a handle accessible through the face of the diffuser.

Screwdriver slot operators are not allowed

Performance Specification

The manufacturer shall provide published performance data. Data shall be tested in accordance to ANSI/ASHRAE Standard 70-2006.

DCD - Directional Ceiling Diffusers

3/2006

Series 5000 - Performance/(S4) 4-Way Square Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

Directional Ceiling Diffusers



DCD

NECK SIZE Ak	Ps Pt	NECK VELOCITY					
		200	300	400	500	600	700
		.006 .008	.013 .018	.022 .032	.035 .050	.050 .072	.068 .099
6" X 6" Ak = .145	TOTAL CFM	50	75	100	125	150	175
	CFM/SIDE	13	19	25	31	38	44
	THROW	2-4	4-8	7-11	9-13	11-16	13-17
	NC	-	-	-	-	20	25
9" X 9" Ak = .325	TOTAL CFM	113	169	225	281	335	394
	CFM/SIDE	28	42	56	70	84	98
	THROW	3-5	5-9	8-12	10-15	12-17	14-18
	NC	-	-	-	21	26	31
12" X 12" Ak = .578	TOTAL CFM	200	300	400	500	600	700
	CFM/SIDE	50	75	100	125	150	175
	THROW	3-7	6-10	9-14	11-16	13-18	15-20
	NC	-	-	-	24	29	34
15" X 15" Ak = .903	TOTAL CFM	313	469	625	781	938	1094
	CFM/SIDE	78	117	156	195	234	273
	THROW	4-8	7-12	10-15	12-18	15-20	17-22
	NC	-	-	21	28	31	36
18" X 18" Ak = 1.301	TOTAL CFM	450	675	900	1125	1350	1575
	CFM/SIDE	113	169	225	281	338	394
	THROW	5-10	8-14	11-17	14-20	16-22	18-23
	NC	-	-	22	27	32	37
21" X 21" Ak = 1.77	TOTAL CFM	613	919	1225	1531	1837	2144
	CFM/SIDE	153	230	306	383	459	536
	THROW	6-12	9-16	12-19	15-21	17-23	19-25
	NC	-	-	23	28	33	38
24" X 24" Ak = 2.312	TOTAL CFM	800	1200	1600	2000	2400	2800
	CFM/SIDE	200	300	400	500	600	700
	THROW	7-14	10-17	13-20	16-23	18-25	21-27
	NC	-	-	24	29	34	39
27" X 27" Ak = 2.926	TOTAL CFM	1013	1519	2025	2531	3037	3544
	CFM/SIDE	253	380	506	633	759	886
	THROW	7-15	11-19	14-22	17-25	20-27	22-28
	NC	-	20	25	30	35	40
33" X 33" Ak = 4.371	TOTAL CFM	1513	2269	3025	3781	4537	5294
	CFM/SIDE	378	567	756	945	1134	1323
	THROW	9-18	13-22	16-25	19-27	22-30	24-31
	NC	-	21	26	31	36	41



See Page DCD-43 for Performance Notes

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted By: _____

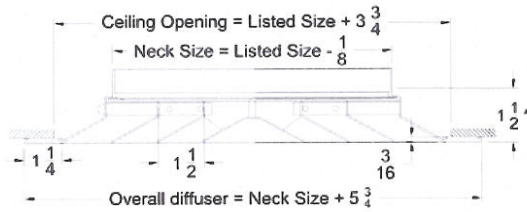


**Square / Rectangular Louver Face Ceiling Diffusers
 Extruded Aluminum - Removable Core**

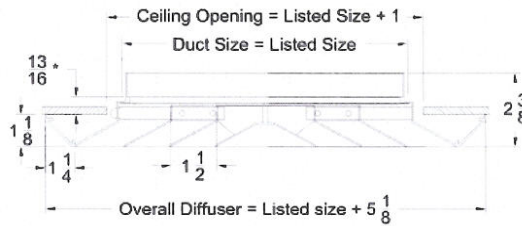
- | | |
|-----------------------|---|
| Models: 5000-1 | Flush Surface Mounting |
| 5000-2 | V-Beveled Drop Surface Mounting |
| 5000-4 | Deep Drop Surface Mounting |
| 5000-46 | Lay in T-Bar Deep Drop Surface Mounting |
| 5000-6 | Lay in T-Bar (12X12, 24X24, 36X24 48X24 and 24X24 Module) |
| 5000-7 | Concealed Spline (24X24 Module) |

Submittal: 5000

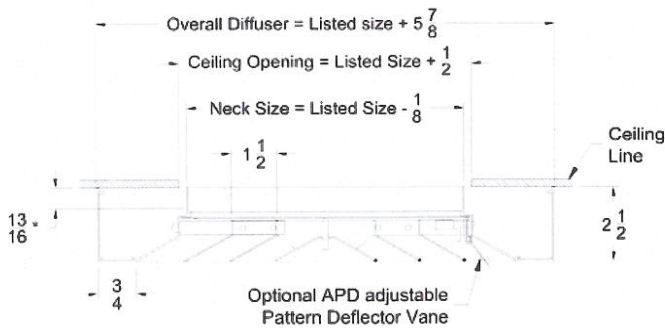
Model: 5000-1 (Flush Surface Mount)



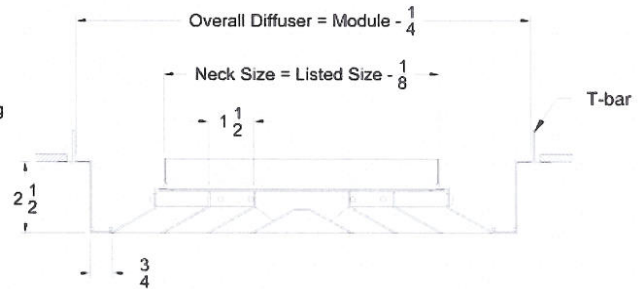
Model: 5000-2 (V-Beveled Drop Surface)



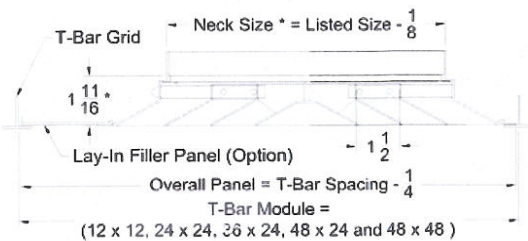
Model: 5000-4 (Deep Drop Surface Mounting)



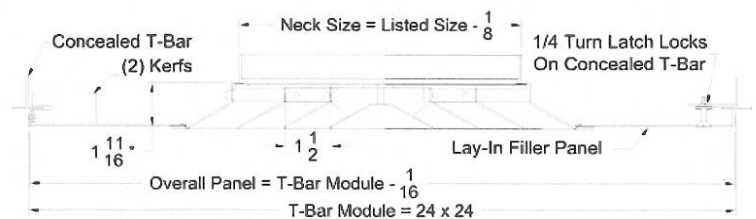
Model: 5000-46 (Lay in T-Bar Deep Drop Surface Mounting)



Model: 5000-6 (Lay in T-Bar)



Model: 5000-7 (Concealed Spline)



* Filler panel included for neck sizes under 18X18 to fit in 24X24 T-bar grid (6X6, 9X9, 12X12 and 15X15 include filler panel).

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted By: _____



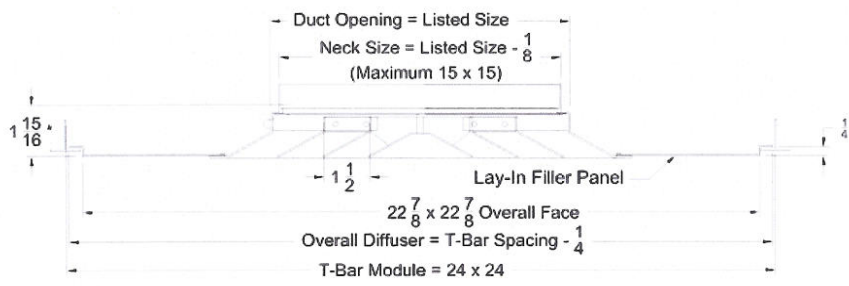
METAL AIRE™

**Square / Rectangular Louver Face Ceiling Diffusers
 Extruded Aluminum - Removable Core**

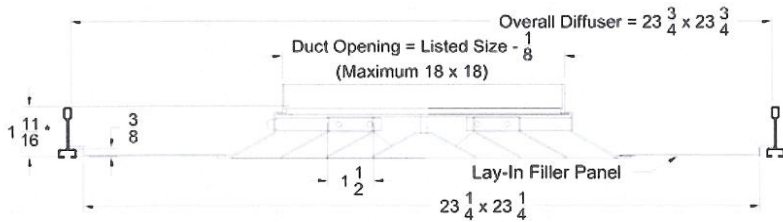
Models: **5000-8** Tegular T-Bar (24X24 Module)
5000-9 Donn Finline (24X24 Module)

Submittal: 5000

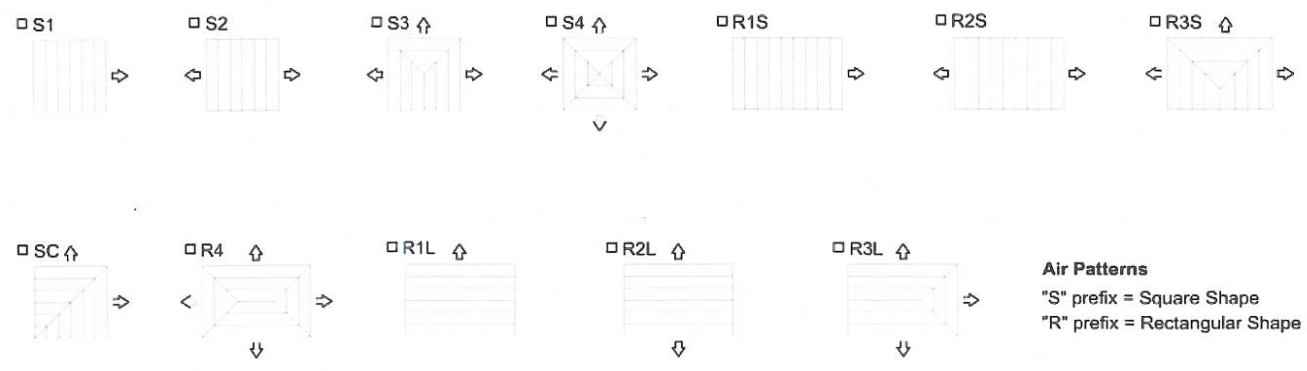
□ Model: 5000-8 (Tegular T-Bar)



□ Model: 5000-9 (Donn Finline)



* Dimension indicates the distance needed for Clearance from the bottom of the duct to the ceiling line and must be maintained for proper fit.



Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted By: _____

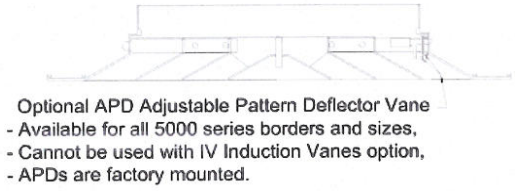


**Options for Square / Rectangular Louver Face Ceiling Diffusers
 Extruded Aluminum - Removable Core**

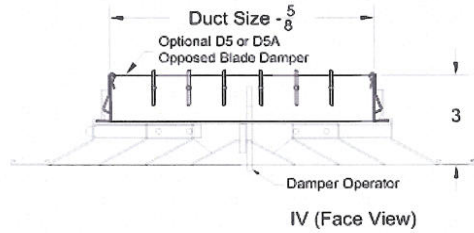
- Models: **APD** Air Pattern Deflector
D5 Steel Opposed Blade Damper
D5A Aluminum Opposed Blade Damper
IV Induction Vanes

Submittal: 5000

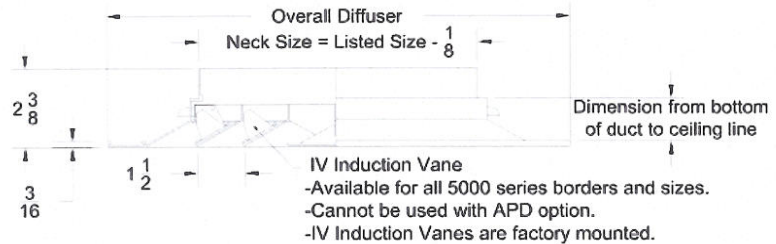
Option: APD Air Pattern Deflector



Option: D5 Steel Opposed Blade Damper.
 D5A Aluminum Opposed Blade Damper.



Option: IV Induction Vanes



IV-SPFN High Performance Upgrade IV:
 - Available for all 5000 series borders and sizes.
 - Includes IV (Induction Vane) option.
 - Cannot be used with APD (Air Pattern Deflector) option.

Frame Style	Overall Diffuser Size	Ceiling Opening Dimensions	Bottom of Duct To Ceiling Line
IV			
-1	Neck Size + 5 1/4	Neck Size + 3 1/4	1 1/2
-2	Neck Size + 4 5/8	Neck Size + 1/2	13/16
-6	T-Bar Spacing - 1/4	T-Bar Module Size	1 11/16
-7	T-Bar Spacing - 1/16	T-Bar Module Size	1 11/16
-8	T-Bar Spacing - 1/4	T-Bar Module Size	1 15/16
-9	T-Bar Grid Size - 1/4	Ceiling Grid Size	1 11/16

Notes: (check if provided)

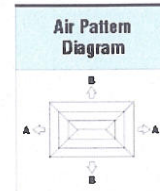
1. Available Finishes	2. Available Accessories	3. Available Options	4. Construction Details
Standard Finish: <input type="checkbox"/> 01 White. Optional Finish (no extra charge): <input type="checkbox"/> 24 Mill finish. Optional Finish (extra charge): <input type="checkbox"/> 02 Satin Silver <input type="checkbox"/> 03 Black. <input type="checkbox"/> 28 Custom Color / Setup Charge Note: Anodized Finish not available.	Square and Rectangular Neck: <input type="checkbox"/> D5 Steel Opposed Blade Damper. <input type="checkbox"/> D5A Aluminum Opposed Blade Damper. <input type="checkbox"/> L9 Rectangular Equalizing Grid. <input type="checkbox"/> TR Square to Round Transition. Round Neck: <input type="checkbox"/> G3 Equalizing Grid. <input type="checkbox"/> BDS Butterfly Damper. <input type="checkbox"/> RSD Radial Shutter Damper.	Factory Mounted: <input type="checkbox"/> IV Induction Vanes. <input type="checkbox"/> APD Air Pattern Deflectors Note: IV (Induction Vanes) can not be used with APD (Air Pattern Deflector) option and vice-versa <input type="checkbox"/> Border Only. <input type="checkbox"/> Core Only. <input type="checkbox"/> FGBP - Factory Installed R6 Fiberglass Insulation (24X24 only)	<input type="checkbox"/> Sizes only as listed. <input type="checkbox"/> Available air patterns: S1, S2, S3, S4, R1S, R1L, R2S, R2L, R3S, R3L, R4 and SC. <input type="checkbox"/> For 5000-6 (D5) Models Only: 21 x 21 Neck in 24 x 24 Module is available in S4 Pattern only.

DCD - Directional Ceiling Diffusers

Series 5000 - Performance/(R4) 4-Way Rectangular Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

NECK SIZE Ak	Ps Pt Side Designation	NECK VELOCITY											
		200		300		400		500		600		700	
		A	B	A	B	A	B	A	B	A	B	A	B
6" X 9" Ak = .217	TOTAL CFM	75		113		150		185		225		263	
	CFM/SIDE	13	25	19	38	25	50	31	63	38	75	43	86
	THROW NC	2-4	2-5	4-8	5-9	7-11	8-12	9-13	10-14	11-16	12-17	13-17	14-18
6" X 12" Ak = .289	TOTAL CFM	100		150		200		250		300		350	
	CFM/SIDE	13	38	19	56	25	75	31	94	38	113	44	131
	THROW NC	2-4	3-6	4-8	6-10	7-11	8-13	9-13	11-15	11-16	13-17	13-17	15-19
9" X 12" Ak = .434	TOTAL CFM	150		225		300		375		450		525	
	CFM/SIDE	28	47	42	70	56	94	70	117	84	141	98	164
	THROW NC	3-5	3-7	5-9	6-10	8-12	9-13	10-15	11-16	12-17	13-18	14-18	16-20
9" X 15" Ak = .542	TOTAL CFM	188		281		375		469		563		656	
	CFM/SIDE	28	66	42	98	56	131	70	164	84	197	98	230
	THROW NC	3-5	4-8	5-9	7-11	8-12	9-14	10-15	12-17	12-17	14-19	14-18	16-21
9" X 18" Ak = .650	TOTAL CFM	225		338		450		563		675		788	
	CFM/SIDE	28	84	42	127	56	169	70	211	84	253	98	295
	THROW NC	3-5	4-9	5-9	7-12	8-12	10-16	10-15	13-18	12-17	15-20	14-18	17-22
9" X 21" Ak = .759	TOTAL CFM	263		394		525		656		788		919	
	CFM/SIDE	28	103	42	155	56	206	70	258	84	309	98	361
	THROW NC	3-5	5-10	5-9	8-13	8-12	11-17	10-15	13-19	12-17	16-21	14-18	18-23
12" X 15" Ak = .723	TOTAL CFM	250		375		500		625		750		875	
	CFM/SIDE	50	75	75	113	100	150	125	188	150	225	175	263
	THROW NC	3-7	4-8	6-10	7-12	9-14	10-15	11-16	12-18	13-18	14-20	15-20	16-21
12" X 18" Ak = .867	TOTAL CFM	300		450		600		750		900		1050	
	CFM/SIDE	50	100	75	150	100	200	125	250	150	300	175	350
	THROW NC	3-7	5-10	6-10	8-13	9-14	11-16	11-16	13-19	13-18	15-21	15-20	17-23
12" X 21" Ak = 1.012	TOTAL CFM	350		525		700		875		1050		1225	
	CFM/SIDE	50	125	75	188	100	250	125	313	150	375	175	438
	THROW NC	3-7	5-11	6-10	8-14	9-14	11-18	11-16	14-20	13-18	16-22	15-20	18-24
12" X 24" Ak = 1.198	TOTAL CFM	400		600		800		1000		1200		1400	
	CFM/SIDE	50	150	75	225	100	300	125	375	150	450	175	525
	THROW NC	3-7	6-12	6-10	9-15	9-14	12-19	11-16	15-21	13-18	17-23	15-20	19-25
15" X 18" Ak = 1.094	TOTAL CFM	375		563		750		938		1125		1313	
	CFM/SIDE	78	109	117	164	156	219	195	273	234	328	273	383
	THROW NC	4-8	5-10	7-12	8-14	10-15	11-17	12-18	14-19	15-20	16-22	17-22	18-23
15" X 24" Ak = 1.445	TOTAL CFM	500		750		1000		1250		1500		1750	
	CFM/SIDE	78	172	117	258	156	344	195	430	234	516	273	602
	THROW NC	4-8	6-13	7-12	9-16	10-15	13-19	12-18	15-22	15-20	18-24	17-22	20-26
18" X 24" Ak = 1.734	TOTAL CFM	600		900		1200		1500		1800		2100	
	CFM/SIDE	113	188	160	281	225	375	281	469	338	563	394	656
	THROW NC	5-10	6-13	8-14	10-17	11-17	13-20	14-20	16-23	16-22	18-25	18-23	20-26
21" X 33" Ak = 2.782	TOTAL CFM	963		1444		1925		2406		2888		3369	
	CFM/SIDE	153	328	230	492	306	656	383	820	459	984	536	1148
	THROW NC	6-12	8-17	9-16	12-21	12-19	15-24	15-21	18-26	17-23	21-29	19-25	23-30
24" X 30" Ak = 2.890	TOTAL CFM	1000		1500		2000		2500		3000		3500	
	CFM/SIDE	200	300	300	450	400	600	500	750	600	900	700	1050
	THROW NC	7-14	8-16	10-17	12-20	13-20	15-23	16-23	18-26	18-25	21-28	21-27	23-30



Directional Ceiling Diffusers
DCD

See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

3/2006

Series 5000 - Performance/(S3) 3-Way Square Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

Directional Ceiling Diffusers



DCD

NECK SIZE Ak	P _s Pt	NECK VELOCITY					
		200	300	400	500	600	700
6" X 6" Ak = .135	TOTAL CFM	50	75	100	125	150	175
	CFM/SIDE	13	19	25	31	38	44
	THROW	2-4	4-8	7-11	9-13	11-16	13-17
	NC	-	-	-	-	20	25
9" X 9" Ak = .304	TOTAL CFM	113	169	225	281	335	394
	CFM/SIDE	28	42	56	70	84	98
	THROW	3-5	5-9	8-12	10-15	12-17	14-18
	NC	-	-	-	21	26	31
12" X 12" Ak = .541	TOTAL CFM	200	300	400	500	600	700
	CFM/SIDE	50	75	100	125	150	175
	THROW	3-7	6-10	9-14	11-16	13-18	15-20
	NC	-	-	-	24	29	34
15" X 15" Ak = .845	TOTAL CFM	313	469	625	781	938	1094
	CFM/SIDE	78	117	156	195	234	273
	THROW	4-8	7-12	10-15	12-18	15-20	17-22
	NC	-	-	21	26	31	36
18" X 18" Ak = 1.216	TOTAL CFM	450	675	900	1125	1350	1575
	CFM/SIDE	113	169	225	281	338	394
	THROW	5-10	8-14	11-17	14-20	16-22	18-23
	NC	-	-	22	27	32	37
21" X 21" Ak = 1.635	TOTAL CFM	613	919	1225	1531	1837	2144
	CFM/SIDE	153	230	306	383	459	536
	THROW	6-12	9-16	12-19	15-21	17-23	19-25
	NC	-	-	23	28	33	38
24" X 24" Ak = 2.162	TOTAL CFM	800	1200	1600	2000	2400	2800
	CFM/SIDE	200	300	400	500	600	700
	THROW	7-14	10-17	13-20	16-23	18-25	21-27
	NC	-	-	24	29	34	39
27" X 27" Ak = 2.736	TOTAL CFM	1013	1519	2025	2531	3037	3544
	CFM/SIDE	253	380	506	633	759	886
	THROW	7-15	11-19	14-22	17-25	20-27	22-28
	NC	-	20	25	30	35	40



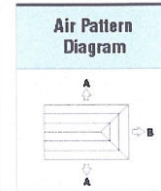
See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

Series 5000 - Performance/(R3L) 3-Way Rectangular Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

NECK SIZE Ak	Ps Pt Side Designation	NECK VELOCITY											
		200		300		400		500		600		700	
		.006 .008		.013 .018		.022 .032		.035 .050		.050 .072		.068 .099	
		A	B	A	B	A	B	A	B	A	B	A	B
6" X 9" Ak = .217	TOTAL CFM	75		113		150		188		225		263	
	CFM/SIDE	25	13	38	19	50	25	63	31	75	38	88	44
	THROW NC	2-5	2-4	5-9	4-8	8-12	7-11	10-14	9-13	12-17	11-16	14-18	13-17
6" X 12" Ak = .289	TOTAL CFM	100		150		200		250		300		350	
	CFM/SIDE	44	13	66	19	88	25	109	31	131	38	153	44
	THROW NC	3-6	2-4	6-10	4-8	8-13	7-11	11-16	9-13	13-18	12-17	15-20	14-17
9" X 12" Ak = .434	TOTAL CFM	150		225		300		375		450		525	
	CFM/SIDE	61	28	91	42	122	56	152	70	183	84	213	98
	THROW NC	4-7	3-5	6-11	5-9	9-14	8-12	12-17	10-15	14-19	12-17	16-21	14-18
9" X 15" Ak = .542	TOTAL CFM	188		281		375		469		563		656	
	CFM/SIDE	80	28	120	42	159	56	199	70	239	84	279	98
	THROW NC	4-8	3-5	7-12	5-9	10-15	8-12	12-18	10-15	15-20	12-17	17-22	14-18
9" X 18" Ak = .650	TOTAL CFM	225		338		450		563		675		788	
	CFM/SIDE	98	28	148	42	197	56	246	70	295	84	345	98
	THROW NC	5-9	3-5	8-13	5-9	11-16	8-12	13-19	10-15	15-21	12-17	17-23	14-18
9" X 21" Ak = .759	TOTAL CFM	263		394		525		656		788		919	
	CFM/SIDE	117	28	176	42	234	56	293	70	352	84	410	98
	THROW NC	5-10	3-5	8-14	5-19	11-17	8-12	14-20	10-15	16-22	13-18	18-24	14-18
12" X 15" Ak = .723	TOTAL CFM	250		375		500		625		750		875	
	CFM/SIDE	100	50	150	75	200	100	250	125	300	150	350	175
	THROW NC	5-10	3-6	8-13	6-10	11-16	9-14	13-19	11-16	15-21	13-18	17-23	15-20
12" X 18" Ak = .867	TOTAL CFM	300		450		600		750		900		1050	
	CFM/SIDE	125	50	188	75	250	100	313	125	375	150	438	175
	THROW NC	5-11	3-7	8-14	6-10	11-18	9-14	14-20	11-16	16-22	15-20	18-24	15-20
12" X 21" Ak = 1.012	TOTAL CFM	375		563		750		938		1125		1313	
	CFM/SIDE	148	78	223	117	297	156	371	195	445	234	520	273
	THROW NC	6-12	4-8	9-15	7-12	12-19	10-15	15-21	12-18	17-23	15-20	19-25	17-22
12" X 24" Ak = 1.156	TOTAL CFM	438		656		875		1094		1313		1531	
	CFM/SIDE	180	78	270	117	359	156	449	195	539	234	629	273
	THROW NC	6-13	4-8	10-17	7-12	13-20	10-15	16-22	12-18	18-27	16-22	20-26	17-22
15" X 18" Ak = 1.084	TOTAL CFM	525		788		1050		1313		1575		1837	
	CFM/SIDE	206	113	309	169	413	225	516	281	619	338	722	394
	THROW NC	7-14	5-10	10-17	8-14	13-21	11-17	16-23	14-20	19-25	16-22	21-27	18-23
15" X 24" Ak = 1.445	TOTAL CFM	600		900		1200		1500		1800		2100	
	CFM/SIDE	244	113	366	169	488	225	609	281	731	338	853	394
	THROW NC	7-15	5-10	11-19	8-14	14-22	11-17	17-24	14-20	19-26	17-23	22-28	18-23
18" X 24" Ak = 1.734	TOTAL CFM	788		1181		1575		1969		2362		2756	
	CFM/SIDE	317	153	476	230	634	306	793	383	952	459	1110	536
	THROW NC	8-17	6-12	12-20	9-16	15-24	12-19	18-26	15-21	21-28	18-23	23-30	19-25



Directional Ceiling Diffusers



DCD

See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

3/2006

Series 5000 - Performance/(R3S) 3-Way Rectangular Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

Directional Ceiling Diffusers



DCD

NECK SIZE Ak	Ps Pt Side Designation	NECK VELOCITY											
		200		300		400		500		600		700	
		.006 .008		.013 .018		.022 .032		.035 .050		.050 .072		.068 .099	
		A	B	A	B	A	B	A	B	A	B	A	B
6" X 9" Ak = .203	TOTAL CFM	75		113		150		188		225		263	
	CFM/SIDE	28	23	42	35	56	47	70	59	84	70	98	82
	THROW NC	3-6	3-6	7-12	7-11	11-18	11-17	16-23	16-23	21-29	20-28	24-32	24-34
6" X 12" Ak = .270	TOTAL CFM	100		150		200		250		300		350	
	CFM/SIDE	50	25	75	38	100	50	125	63	150	75	175	88
	THROW NC	5-9	3-6	8-15	7-12	13-20	11-17	18-26	16-23	22-31	20-28	26-37	26-34
9" X 12" Ak = .405	TOTAL CFM	150		225		300		375		450		525	
	CFM/SIDE	50	50	75	75	100	100	125	125	150	150	175	175
	THROW NC	5-9	5-9	8-15	8-15	13-20	13-20	18-26	18-26	22-31	22-31	26-37	26-37
9" X 15" Ak = .507	TOTAL CFM	188		28		375		469		563		656	
	CFM/SIDE	78	55	117	82	156	109	195	137	234	164	273	191
	THROW NC	4-8	3-7	7-12	6-11	10-15	9-14	12-18	11-16	15-20	14-19	17-22	15-20
12" X 15" Ak = .676	TOTAL CFM	250		375		500		625		750		875	
	CFM/SIDE	78	86	117	129	156	172	195	215	234	258	273	301
	THROW NC	4-8	4-9	7-12	7-12	10-15	10-16	12-18	13-18	15-20	15-20	17-22	17-22
12" X 18" Ak = .811	TOTAL CFM	300		450		600		750		900		1050	
	CFM/SIDE	113	94	169	141	225	188	281	234	338	281	394	328
	THROW NC	5-10	4-9	8-14	7-13	11-17	10-16	14-20	13-19	16-22	15-21	18-23	17-22
15" X 18" Ak = 1.014	TOTAL CFM	375		563		750		938		1125		1313	
	CFM/SIDE	113	131	169	197	225	263	281	238	338	394	394	459
	THROW NC	5-10	5-11	8-14	8-15	11-17	12-18	14-20	14-20	16-22	17-23	18-23	19-24
15" X 21" Ak = 1.182	TOTAL CFM	438		656		875		1094		1313		1531	
	CFM/SIDE	153	142	230	213	306	284	383	355	459	427	536	498
	THROW NC	6-12	5-11	9-16	9-15	12-19	12-18	15-21	15-21	17-23	17-23	19-25	19-25
18" X 24" Ak = 1.182	TOTAL CFM	600		900		1200		1500		1800		2100	
	CFM/SIDE	200	200	300	300	400	400	500	500	600	600	700	700
	THROW NC	7-14	7-14	10-17	10-17	13-20	13-20	16-23	16-23	18-25	18-25	21-27	21-27
21" X 27" Ak = 2.128	TOTAL CFM	788		1181		1575		1969		2362		2756	
	CFM/SIDE	253	267	380	401	506	534	633	668	759	802	886	935
	THROW NC	7-15	7-15	11-19	11-19	14-22	15-22	17-25	17-25	20-27	20-27	22-28	22-29
24" X 30" Ak = 2.703	TOTAL CFM	1000		1500		2000		2500		3000		3500	
	CFM/SIDE	313	344	469	516	625	688	781	859	938	1031	1094	1203
	THROW NC	8-17	8-17	12-20	12-11	15-23	16-24	18-26	19-27	21-28	21-29	23-30	23-31



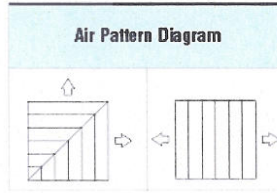
See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

Series 5000 - Performance/(SC) 2-Way Adjacent or (S2) Opposite Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

NECK SIZE Ak	Ps Pt	NECK VELOCITY					
		200	300	400	500	600	700
		.006 .008	.013 .018	.022 .032	.035 .050	.050 .072	.068 .099
6" X 6" Ak = .132	TOTAL CFM	50	75	100	125	150	175
	CFM/SIDE	25	38	50	63	75	88
	THROW	2-5	5-9	8-12	10-14	12-17	14-18
	NC	20	20	20	20	20	25
9" X 9" Ak = .298	TOTAL CFM	113	169	225	281	338	394
	CFM/SIDE	56	84	113	141	169	197
	THROW	3-7	6-11	9-14	12-17	14-19	16-20
	NC	20	20	20	21	26	31
12" X 12" Ak = .529	TOTAL CFM	200	300	400	500	600	700
	CFM/SIDE	100	150	200	250	300	350
	THROW	5-10	8-13	11-16	13-19	15-21	17-23
	NC	20	20	20	24	29	34
15" X 15" Ak = .827	TOTAL CFM	313	469	625	781	938	1094
	CFM/SIDE	156	234	313	391	469	547
	THROW	6-12	9-16	12-19	15-21	17-24	19-25
	NC	20	20	21	26	31	36
18" X 18" Ak = 1.190	TOTAL CFM	450	675	900	1125	1350	1575
	CFM/SIDE	225	338	450	563	675	788
	THROW	7-14	10-18	14-21	17-24	19-26	21-28
	NC	20	20	22	27	32	37
21" X 21" Ak = 1.620	TOTAL CFM	613	919	1225	1531	1837	2144
	CFM/SIDE	306	459	613	766	919	1072
	THROW	8-17	12-20	15-23	18-26	21-28	23-30
	NC	20	20	23	28	33	38
24" X 24" Ak = 2.116	TOTAL CFM	800	1200	1600	2000	2400	2800
	CFM/SIDE	400	600	800	1000	1200	1400
	THROW	9-18	13-22	16-25	19-28	22-30	24-30
	NC	20	20	24	29	34	39
27" X 27" Ak = 2.679	TOTAL CFM	1013	1519	2025	2531	3037	3544
	CFM/SIDE	506	759	1013	1266	1519	1772
	THROW	10-20	14-24	17-27	21-29	23-32	25-33
	NC	20	20	25	30	35	40



Directional Ceiling Diffusers



DCD

Series 5000 - Performance/(S1) 1-Way Square Air Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

NECK SIZE Ak	Ps Pt	NECK VELOCITY					
		200	300	400	500	600	700
		.008 .010	.018 .023	.031 .041	.049 .064	.070 .092	.095 .126
6 x 6 Ak = .122	TOTAL CFM	50	75	100	125	150	175
	THROW	3-7	6-10	9-14	11-16	13-18	15-20
	NC	20	20	20	20	20	25
9 x 9 Ak = .275	TOTAL CFM	113	169	225	281	338	394
	THROW	5-10	8-14	11-17	14-20	16-22	18-23
	NC	20	20	20	21	26	31
12 x 12 Ak = .489	TOTAL CFM	200	300	400	500	600	700
	THROW	7-14	10-17	13-20	16-23	19-25	21-27
	NC	20	20	20	24	29	34
15 x 15 Ak = .764	TOTAL CFM	313	469	625	781	938	1094
	THROW	8-17	12-20	15-23	18-26	21-28	23-30
	NC	20	20	21	26	31	36
18 x 18 Ak = 1.100	TOTAL CFM	450	675	900	1125	1350	1575
	THROW	9-19	13-23	17-26	20-29	23-31	25-32
	NC	20	20	22	27	32	37
21 x 21 Ak = 1.498	TOTAL CFM	615	919	1225	1531	1837	2144
	THROW	10-21	14-25	18-28	21-31	24-33	26-35
	NC	20	20	23	28	33	38
24 x 24 Ak = 1.956	TOTAL CFM	800	1200	1600	2000	2400	2800
	THROW	11-23	15-27	19-30	23-32	25-34	28-36
	NC	20	20	24	29	34	39
27 x 27 Ak = 2.476	TOTAL CFM	1013	1519	2025	2531	3037	3544
	THROW	12-24	16-28	20-31	23-34	26-36	29-38
	NC	20	20	25	30	35	40



See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

3/2006

Series 5000 - Performance - (R2L) or (R2S) 2-Way Opposite Pattern

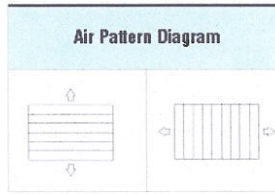
Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

Directional Ceiling Diffusers



DCD

NECK SIZE Ak	Ps Pt	NECK VELOCITY					
		200	300	400	500	600	700
		.007 .009	.015 .021	.027 .037	.042 .057	.060 .082	.082 .112
6" x 9" Ak = .198	TOTAL CFM	75	113	150	188	225	263
	CFM/SIDE	38	56	75	94	113	131
	THROW	3-6	6-10	8-13	11-15	13-17	15-19
	NC	20	20	20	20	23	28
6" x 12" Ak = .265	TOTAL CFM	100	150	200	250	300	350
	CFM/SIDE	50	75	100	125	150	175
	THROW	3-7	6-10	8-14	11-16	13-18	15-20
	NC	20	20	20	20	25	30
6" x 15" Ak = .333	TOTAL CFM	125	188	250	313	375	438
	CFM/SIDE	63	94	125	156	188	219
	THROW	4-7	6-11	8-14	12-17	14-19	16-21
	NC	20	20	20	21	26	31
6" x 18" Ak = .397	TOTAL CFM	150	225	300	375	450	525
	CFM/SIDE	75	113	150	188	225	263
	THROW	4-8	7-12	10-15	12-18	14-20	16-21
	NC	20	20	20	22	27	32
9" x 15" Ak = .496	TOTAL CFM	188	281	375	469	563	656
	CFM/SIDE	94	141	188	234	281	328
	THROW	4-9	7-13	10-16	13-19	15-21	17-22
	NC	20	20	20	23	28	33
9" x 18" Ak = .595	TOTAL CFM	225	338	450	563	675	788
	CFM/SIDE	113	169	225	281	338	394
	THROW	5-10	8-14	11-17	14-20	16-22	18-23
	NC	20	20	20	24	29	34
9" x 21" Ak = .694	TOTAL CFM	263	394	525	656	788	919
	CFM/SIDE	131	197	263	328	394	459
	THROW	5-11	8-15	12-18	14-20	17-23	19-24
	NC	20	20	20	25	30	35
12" x 15" Ak = .661	TOTAL CFM	250	375	500	625	750	875
	CFM/SIDE	125	188	250	313	375	438
	THROW	5-11	8-14	11-18	14-20	16-22	18-24
	NC	20	20	20	25	30	35
12" x 18" Ak = .794	TOTAL CFM	300	450	600	750	900	1050
	CFM/SIDE	150	225	300	375	450	525
	THROW	6-12	9-15	12-19	15-21	17-23	19-25
	NC	20	20	20	25	30	35
12" x 21" Ak = .926	TOTAL CFM	350	525	700	875	1050	1225
	CFM/SIDE	175	263	350	438	525	613
	THROW	6-13	9-16	13-20	15-22	18-24	20-26
	NC	20	20	21	26	31	36
15" x 21" Ak = 1.157	TOTAL CFM	438	656	875	1094	1313	1531
	CFM/SIDE	219	328	438	547	656	766
	THROW	7-14	10-18	14-21	16-24	19-26	21-27
	NC	20	20	22	27	32	37
15" x 24" Ak = 1.323	TOTAL CFM	500	750	1000	1250	1500	1750
	CFM/SIDE	250	375	500	625	750	875
	THROW	7-15	11-19	14-22	17-25	20-27	22-28
	NC	20	20	22	27	32	37
18" x 21" Ak = 1.386	TOTAL CFM	525	788	1050	1313	1575	1837
	CFM/SIDE	263	394	525	656	788	919
	THROW	7-15	11-19	14-22	17-25	20-27	22-29
	NC	20	20	23	28	33	38
18" x 24" Ak = 1.587	TOTAL CFM	600	900	1200	1500	1800	2100
	CFM/SIDE	300	450	600	750	900	1050
	THROW	8-16	12-20	15-23	18-26	21-28	23-30
	NC	20	20	23	28	33	38
21" x 27" Ak = 2.083	TOTAL CFM	788	1181	1575	1969	2362	2756
	CFM/SIDE	394	591	788	984	1181	1378
	THROW	9-18	13-22	16-25	19-28	22-30	24-32
	NC	20	20	24	29	34	39



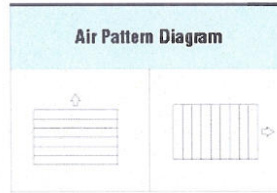
See Page DCD-43 for Performance Notes

DCD - Directional Ceiling Diffusers

Series 5000 - Performance- (R1L) or (R1S) 1-Way Rectangular Pattern

Models 5000 (-1, -2, -4, -46, -6, -7, -8, -9)

NECK SIZE Ak	Ps Pt	NECK VELOCITY					
		200	300	400	500	600	700
		.008 .010	.018 .023	.031 .041	.049 .064	.070 .092	.095 .126
6" x 9" Ak = .183	TOTAL CFM	75	113	150	188	225	263
	THROW	4-8	7-12	10-15	12-18	14-20	16-21
	NC	20	20	20	20	23	28
6" x 12" Ak = .244	TOTAL CFM	100	150	200	250	300	350
	THROW	5-10	8-13	11-16	13-19	15-21	17-23
	NC	20	20	20	20	25	30
6" x 15" Ak = .307	TOTAL CFM	125	188	250	313	375	438
	THROW	5-11	8-14	11-18	14-20	16-22	18-24
	NC	20	20	20	21	26	31
6" x 18" Ak = .366	TOTAL CFM	150	225	300	300	450	525
	THROW	6-12	9-15	12-19	12-19	17-23	19-25
	NC	20	20	20	20	27	32
6" x 21" Ak = .429	TOTAL CFM	175	263	350	438	525	613
	THROW	6-13	9-16	13-20	15-22	18-24	20-26
	NC	20	20	20	23	28	33
9" x 15" Ak = .458	TOTAL CFM	188	281	375	469	563	656
	THROW	6-13	10-17	13-20	16-23	18-25	20-26
	NC	20	20	20	23	28	33
9" x 18" Ak = .550	TOTAL CFM	225	338	450	563	675	788
	THROW	7-14	10-18	14-21	17-24	19-26	21-28
	NC	20	20	20	24	29	34
12" x 15" Ak = .611	TOTAL CFM	250	375	500	625	750	875
	THROW	7-15	11-19	14-22	17-25	20-27	22-28
	NC	20	20	20	25	30	35
12" x 18" Ak = .733	TOTAL CFM	300	450	600	750	900	1050
	THROW	8-16	12-20	15-23	18-26	21-28	23-30
	NC	20	20	20	25	30	35
15" x 21" Ak = 1.070	TOTAL CFM	438	656	875	1094	1313	1531
	THROW	9-19	13-23	17-26	20-28	22-31	25-32
	NC	20	20	22	27	32	37
15" x 24" Ak = 1.222	TOTAL CFM	500	750	1000	1250	1500	1750
	THROW	10-20	14-24	17-27	20-29	23-31	25-33
	NC	20	20	22	27	32	37
18" x 21" Ak = 1.278	TOTAL CFM	525	788	1050	1313	1575	1837
	THROW	10-20	14-24	18-27	21-30	23-32	26-34
	NC	20	20	23	28	33	38
18" x 24" Ak = 1.467	TOTAL CFM	600	900	1200	1500	1800	2100
	THROW	10-21	14-25	18-28	21-31	24-33	26-34
	NC	20	20	23	28	33	38
21" x 27" Ak = 1.925	TOTAL CFM	788	1181	1575	1969	2362	2756
	THROW	11-23	15-26	19-30	23-32	25-34	28-36
	NC	20	20	24	29	34	39



Directional Ceiling Diffusers



DCD

Series 5000 - Performance Notes:

Performance based on ISO 9001:2000 standards. All units are tested at 28" throw and 20" neck velocity.

Definition of Units:

- CFM | " 13.44 cubic feet per minute"
- ftpm | " feet per minute"
- Pv | " pressure velocity"
- Pt | " pressure drop"
- Ps | " pressure static"
- Throw | " distance from diffuser to work plane"
- NC | " neck velocity"
- Ak | " area constant"